Patent claims

1. A heat exchanger, in particular for motor vehicles, having a housing (2) and at least one tube (3) arranged in the housing (2), characterized in that structures are provided in the region between the tubes (3) and the housing (2) and/or between the individual tubes (3).

2. The heat exchanger as claimed in claim 1, characterized in that the structures are formed from sheet-metal structures arranged between the tubes (3) and the housing (2) and/or between the individual tubes (3).

3. The heat exchanger as claimed in claim 2, characterized in that the sheet-metal structures are finned metal plates (4), studded metal plates or separate tubes.

4. The heat exchanger as claimed in claim 1, characterized in that the structures are formed directly on the housing (2) and/or on the tubes (3).

5. The heat exchanger as claimed in claim 4, characterized in that the structures are produced by means of stamping.

6. The heat exchanger as claimed in one of the preceding claims, characterized in that the structures are fixedly joined to the housing (2) and/or the tubes (3), in particular by soldering.

7. The heat exchanger as claimed in one of the preceding claims, characterized in that the tubes (3) are at least in part formed by flat tubes.

8. The heat exchanger as claimed in one of the preceding claims, characterized in that the tubes (3) have supporting studs on the tube outer side.

9. The heat exchanger as claimed in one of the preceding claims, characterized in that the tubes (3) have a tube surface on the inner and/or outer side which is structured so as to generate turbulence.

10. The heat exchanger as claimed in one of the preceding claims, characterized in that the structures (4) at least in part have an inhomogeneous structure.

11. The heat exchanger as claimed in one of the preceding claims, characterized in that the structures (4) are at least partially toothed.

12. The heat exchanger as claimed in one of the preceding claims, characterized in that the housing (2) is formed in two or more parts.

13. The heat exchanger as claimed in one of the preceding claims, characterized in that a medium which is to be cooled flows within the tubes (3), and a coolant flows in the space between the housing (2) and the tubes (3) and structures (4).

14. The heat exchanger as claimed in one of the preceding claims, characterized in that the structures (4) are arranged on the coolant side in the housing (2) of the heat exchanger (1).

15. The heat exchanger as claimed in one of the preceding claims, characterized in that the structures are arranged in the interior of at least one tube.

16. The heat exchanger as claimed in one of the preceding claims, characterized in that the structures are formed as at least one fin which is in particular straight or of undulating depth and/or in particular has gills.

17. The use of the heat exchanger as claimed in one of claims 1 to 16 as an exhaust-gas heat exchanger or a charge-air cooler of a motor vehicle.